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Richard A. Schwartz (1952–2020)

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Richard Alan Schwartz died on Saturday the 12th of December 2020.

Richard Schwartz died unexpectedly at his home in Lanham, Maryland. Although he had been sick for over a month, he was preparing to begin chemotherapy for Non-Hodgkin's lymphoma, so his sudden passing was a great shock.

Richard was born on March 5th in 1952 and raised in Mayfield Heights, a suburb of Cleveland, Ohio. In school, he played football, was a member of the Latin Club, Student Council, and National Honor Society, captained the "It's Academic" team, and was a National Merit Scholarship Semi-Finalist. He graduated as class Valedictorian at Mayfield High School, earned his B.S. from Carnegie-Mellon University in 1974 and his Ph.D. from the University of California, Berkeley, in 1984. Bob Lin was his dissertation advisor.

Richard's Ph.D. thesis included dramatic new results from two balloon flights in 1978 and 1980 that revolutionized our understanding of solar flares at that time. These flights provided the first high resolution X-ray observations of solar flares made with an array of cooled germanium planar detectors and a phoswich scintillator. Richard's analysis showed conclusively, for the first time, that the flare impulsive hard X-ray spectrum cannot be produced by thermal bremsstrahlung, strongly implying the acceleration of electrons to energies in excess of 200 keV. His analysis also revealed the flare size distribution down to what are now called microflares, and a steep X-ray spectrum at energies below 35 keV from what has, ever since, been dubbed the "super-hot component."

After completing his Ph.D., Richard worked for a couple of years at JPL with the astrophysics group analyzing gamma-ray burst observations made with the Gamma-Ray Spectroscopy instrument on the High-Energy Astronomy Observatory (HEAO 3). In the mid-eighties, he returned to solar flare work, joining Ken Frost's X-ray group at Goddard, where he spent the rest of his career. Initially, he worked on data from the

Hard X-ray Burst Spectrometer (HXRBS) on the Solar Maximum Mission (SMM). Since then, he has been involved in the analysis of data from almost every space mission that has made high energy X-ray and gamma-ray observations of solar flares. These include, most notably, instruments on the Japanese Yohkoh satellite, the Compton Gamma-Ray Observatory, the Fermi Gamma-ray Space Telescope, the MESSENGER mission to Mercury, and the Indian geostationary satellite GSAT-2. His biggest role has been as the scientist responsible for the software used to analyze data from the Ramaty High Energy Solar Spectroscopic Imager (RHESSI). He was playing a similar role for the Spectrometer/Telescope for Imaging X-rays (STIX) on the Solar Orbiter.

Although not a prolific first author, Richard was a co-author on over 100 refereed scientific papers. This reflects his critical role in combining scientific understanding with efficient computational techniques. Indeed, his IDL data analysis procedures will live on for many years for the continued analysis of existing data sets and as models for the analysis of new observations as they become available. Richard’s problem-solving capabilities, prodigious memory, insightful but often acerbic wit, and imposing presence will be sorely missed by his many friends at Goddard and around the world in the international high-energy solar physics community.